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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/630,421 | 07/30/2003 | Oskar Rapp | 331.1047 | 7837 |

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| EXAMINER | |
|---|---|
| PATEL, VISHAL A | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3676 | |

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/630,421 | RAPP ET AL. | |
| | Examiner | Art Unit | |
| | Vishal Patel | 3676 | |

*-- The MAILING DATE of this communication appears on the cover sheet with th correspond nc address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-16 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7/30/03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. Claim 13 recites the limitation "static sealing element" in line 1. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-6, 8, 11, 13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romero et al (US. 5,186,472) in view of Hintenlang (US. 6,062,571).

Romero discloses a lip seal for sealing a gap between housing and a shaft (column 1, lines 5-10 or shaft is an inner casing 12). The lip seal having a support body (14), the support body having an annular part (36) radially to the shaft and a cylindrical part (part connected to static seal 18) running axially of the shaft and the annular part having two opposing sides (two sides of 36). The lip seal having a dynamic sealing element attached to the annular part and enclosing the annular part on the two opposing sides. The lip seal having a static sealing element (18) attached to the cylindrical part at a radial distance from the dynamic sealing element. The support body is made from a rigid material (support body is made from a rigid material). The rigid material is metal (14). There exist a distance between the static seal element and the

dynamic sealing element. The static and dynamic sealing elements are connected to the supporting body by *vulcanization using a coupling agent (process limitation is given little patentable weight in an apparatus claim)*. The static and dynamic sealing elements are made of material.

The dynamic sealing element receives a lip shape during sliding of the seal onto the shaft (lip 48 or 42). The dynamic sealing element has a lip enclosing the shaft (either of lips 48 or 42) and the lip having a lip surface facing the shaft. The dynamic sealing element has a lip edge with a barrier feature (end of lips 48 or 42). The dynamic sealing element has a lip curved towards an environment or towards a sealed-off space (curved portion of lip 42 or 48).

The static sealing element has an outside surface that is corrugated (corrugations on outside surface of 18).

Method of manufacturing having the steps of fastening the dynamic sealing element to the annular part and enclosing the annular part on the two opposing sides at a fastening point (fastening point is the end of 36 where 40 starts) and Positioning the static sealing element on the cylindrical part at a radial distance from the dynamic sealing element.

Method of sealing having the steps of contacting the housing with the static sealing element (tight seal provided by the static sealing element with a housing, column 3, lines 55-59) and contacting the shaft with the dynamic sealing element (contacting inner casing).

Romero discloses the invention substantially as claimed above but fails to disclose that the static sealing element and the dynamic sealing element are made of different material. Hintenlang teaches that a lip seal having a dynamic sealing element (1) and a static sealing element (2), where the dynamic sealing element and the static element are made of different

material or same material (column 1, line 63 to column 2, line 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the material of the static and the dynamic sealing elements of Romero to be made from different material as taught by Hintenlang, since choosing a particular material for static and dynamic sealing elements is advantageous in that it allows for the optimization of the choice of material for each seal in dependence upon the specific application at hand (column 1, lines 63-67 of Hintenlang).

4. Claims 7 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romero and Hintenlang as applied to claim 1 above, and further in view of Peisket et al (US. 4,501,431).

Romero and Hintenlang disclose the invention substantially as claimed above but fail to disclose that the lip is provided with opening on the lip surface for return delivery of a medium to be sealed-off, the openings have a screw-shaped openings, the openings are single-threaded or multiple-threaded. Peisket discloses a lip seal having openings to return delivery of a medium to be sealed off, the openings have a screw shape or single threaded or multiple-threaded (column 5, lines 10-16). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the lip surface of Romero and Hintenlang to have openings as taught by Peisket, to provide return delivery of medium to be sealed-off and provide hydrodynamic pumping elements (column 5, lines 13-15 of Peisket).

5. Claim 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romero (US. 4,936,591) in view of Hintenlang.

Romero'591 discloses a lip seal (10) for sealing a gap between housing and a shaft (column 1, lines 5-10 or shaft is an inner casing 12). The lip seal having a support body (14), the

support body having an annular part (36) radially to the shaft and a cylindrical part (part connected to static seal 18) running axially of the shaft and the annular part having two opposing sides (two sides of 36). The lip seal having a dynamic sealing element attached to the annular part and enclosing the annular part on the two opposing sides. The lip seal having a static sealing element (18) attached to the cylindrical part at a radial distance from the dynamic sealing element. The static sealing element has at least one of an end chamfer and a bottom chamfer on an outside surface (chambers above and below 32).

Romero'591 discloses the invention substantially as claimed above but fails to disclose that the static sealing element and the dynamic sealing element are made of different material. Hintenlang teaches that a lip seal having a dynamic sealing element (1) and a static sealing element (2), where the dynamic sealing element and the static element are made of different material or same material (column 1, line 63 to column 2, line 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the material of the static and the dynamic sealing elements of Romero to be made from different material as taught by Hintenlang, since choosing a particular material for static and dynamic sealing elements is advantageous in that it allows for the optimization of the choice of material for each seal in dependence upon the specific application at hand (column 1, lines 63-67 of Hintenlang).

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Romero and Hintenlang as applied to claim 1 in paragraph 3, and further in view of Besson et al (US. 6,401,843).

Romero and Hintenlang disclose the invention substantially as claimed above but fail to disclose that a sensor attached to the housing and a sensor wheel or a multi-pole wheel on the

shaft interacting with the sensor. Besson teaches to have a sensor (sensor 100 attached by lip to housing) attached to the housing and a sensor wheel on the shaft (sensor wheel 101). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure the lip seal of Romero and Hintenlang to have a sensor and a sensor as taught by Besson to provide detection of moving parts and possibly allow its rotational speed to be measured and/or controlled (column 4, lines 41-44 of Besson).

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bush, Guth et al, Miura et al, Johnen et al and Black et al teach pumping grooves on a lip seal. Ruff, Jr. et al teaches a static seal on casing or no static on casing. Antonini et al and Ehrmann et al teach to have a seal enclose an annular member of a casing. Hufnagel, Jay and Messenger et al teach a lip seal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vishal Patel whose telephone number is (703) 308-8495. The examiner can normally be reached on Monday through Friday from 7:30 PM to 4:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight, can be reached on (703) 309-3179.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2168. Technology Center 3600 Customer Service is available at 703-308-1113. General Customer Service numbers are at 800-786-9199 or 703-308-9000. Fax Customer Service is available at 703-872-9325.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

**or faxed to**: 703-872-9326, for formal communications for entry before Final action: or,

703-872-9327, for formal communications for entry after Final action.

Hand-delivered responses should be brought to Crystal Park Five, 2451 Crystal Drive, Arlington, Virginia, Seventh Floor (Receptionist suite adjacent to the elevator lobby).

VP
April 14, 2004

ALISON PICKARD
Primary Patent Examiner
Tech. Center 3600